# The cost and burden of chronic pain

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SUMMARY POINTS

- There are enormous costs which society has to bear as a result of the burden of chronic pain and its suffering.
- Policy makers at governmental level and commissioners, and health care decision-makers alike should adopt a broad, strategic and coherent perspective in determining issues relating to service provision and resource allocation.

**Introduction**

"*Chronic pain is common—but it isn't sexy.*" This is the opening statement in an editorial, penned by Henry McQuay – Professor of Anaesthetics at Oxford University. He argues that "people who through no fault of their own have their lives demolished by pain deserve our help"[1]. Pain represents a major clinical, social and economic problem and one which has exercised generations of health care professionals, while for many patients pain is more or less a permanent feature of their lives and has a profound impact on their quality of life, and for them, it is the management of the condition that it important, so that suffering is minimised for as much of the time as possible.

The aim of this review is to assess the cost and burden of chronic non-cancer pain, persistent or episodic nociceptive pain of a duration or intensity that adversely affects the function or well-being of the patient and defined by the International Association for the Study of Pain as pain experienced every day for three months over a six month period [2].The review initially examines estimates of the prevalence of pain and then considers its economic impact and effect on quality of life.

**The prevalence of pain**

Estimates of the prevalence of chronic pain range from 8% to 60% and over[3-11] due to differences in methodologies employed in determining prevalence rates and the different populations studied. Chronic pain of moderate to severe intensity has been estimated to occur in 19% of adult Europeans, seriously affecting their daily activities, social and working lives. Most had not received pain specialist treatment and 40% reported inadequate management of their pain[6]. The World Health Organization has estimated that osteoarthritis affects nearly 10% of men and 18% of women aged >60 years; rheumatoid arthritis affects 0.3-1% of the general population and is more prevalent among women and in developed countries; and, low back pain affects nearly everyone at some point in time and about 4-33% of the population at any given point[10].

However, the problem is not confined to adults, with an estimated prevalence of chronic pain in children and adolescents of 25% and with a third reporting the pain to be severe[11]. In addition, the impact of chronic pain is expected to increase as the effects of population ageing become apparent and increased levels of obesity and lack of physical activity will increase the prevalence of conditions associated with chronic pain[10].

**The economic impact of pain[1]**

The extent of the chronic pain problem poses a significant economic burden for patients, health services and societies alike and while international comparisons are difficult to make, due to differences in study methods and perspectives employed, it is apparent that pain represents a significant burden on limited healthcare resources across all countries[12]. This section will explore the specific impact of pain on economies, on benefits agencies and health services.

***Costs to economies***

The economic impact of pain is greater than most other health conditions[13,14], due to its effects on rates of absenteeism, reduced levels of productivity and increased risk of leaving the labour market. In Sweden the loss of production due to sick leave resulting from chronic pain has been estimated to constitute 91% of the socioeconomic cost of SEK 87.5 billion (£7.37 billion) associated with lost production in 2003[14]. The effect of pain, and in particular pain exacerbations, was also evident in a USA study conducted in 2003/4[15] where it was estimated that the impact of arthritis on lost productive work time amounted to US$7.1 billion (£3.76 billion), but with 66% of this attributed to the 38% of workers with pain exacerbations. It has been estimated that 1 million working days were lost annually in Denmark as a result of chronic pain[16] while another Danish study demonstrated that productivity costs account for 85% of the total lower back pain costs per patient[17]. The indirect

[1]*Note: Costs have been translated into € based on exchange rates quoted in The Economist (15/08/2008)*

(productivity) cost of back pain in the UK was estimated to be between £5 billion and £10.7 billion in 1998, depending on the approach employed[13]. As well as its impact on absenteeism, it is also known that pain has a major impact on worker productivity – referred to as presenteeism. A US study found that common pain conditions resulted in lost productivity amounting to $61 billion (£32.34 billion) per year, of which 77% was explained by reduced performance and not work absence[18]. Similarly, while the number of absent workdays was estimated to be 9.9 million annually in Australia, reduced effectiveness workdays were estimated at 36.5 million per year, which elevated the productivity costs from Aus$1.4 billion (£0.65 billion), from absenteeism alone to Aus$5.1 billion (£2.35 billion), when both absenteeism and presenteeism were included[19].

Furthermore, as well as its impact on absenteeism and presenteeism, pain has a profound effect on people leaving the labour market and moving into long-term incapacity and disability. For example, the odds of quitting one's job because of ill health have been shown to be seven times higher among people with chronic pain problems than 'normals'[17].

***Costs to benefits agencies***

The two health conditions most clearly associated with disability benefits are musculoskeletal disorders (particularly non-specific lower back pain and general chronic pain syndromes) and mental health problems. In the UK, these complaints comprise more than 50% of sick certification. Musculoskeletal complaints, predominantly mild to moderate in severity, and often with no clear or consistent underlying pathology, account for around 20% of benefit recipients in the UK, and therefore account for a significant proportion of incapacity for work[20]. Given that the annual economic costs associated with sickness absence and worklessness amount to over £100 billion[21], the impact of pain and associated conditions remains a significant contributory factor.

***Costs to health services***

McQuay argues that the imperative to improve the management of patients with chronic pain conditions is based on humanitarian and economic considerations. "Patients with chronic pain who are managed poorly will bounce around the healthcare system, becoming more and more exasperated and consuming considerable resources"[1]. Estimates of the costs to health services resulting from pain and its management generally constitute a relatively small proportion of the total cost burden, although differences in methodologies and patient management and treatment approaches make cross country comparisons difficult[22]. Analysis of a Canadian database demonstrated that from the perspective of the health ministry, costs of health care resources were significantly higher in patients with painful neuropathic disorders than those patients without such conditions but matched for age and sex (Cdn$4,163 as opposed to Cdn$1,846 - £2,071 as opposed to £918)[23]. In Germany, it has been estimated that the cost of back pain amounted to £13.44 billion each year[24], while in the UK back pain was estimated to cost the NHS £1 billion per annum[13]. The direct medical costs of low back pain in Belgium were estimated to range between £66.25 million to £130.21 million from information contained in databases relating to general practice consultations and procedures performed in hospitals in 2004[22]. An Australian study has also shown that chronic pain was associated with increased hospitalisation and primary care consultations in the last 12 months (2-fold increase) and with the numbers of emergency department visits in the last 12 months (5-fold increase) compared with no chronic pain, even after adjusting for known predictors[25]. Primary care management of patients with chronic pain accounted for 4.6 million appointments per year in the UK, equivalent to 793 whole time general practitioners (GPs), at a total cost of around £69 million, with poor efficacy the trigger for almost as many consultations as poor tolerability. In addition to ineffective treatments, there are issues relating to unnecessary referrals, treatment, and diagnostic tests, and these are of particular concern as they are potentially avoidable[26].

**Pain and its impact on quality of life**

Estimates of the economic burden of chronic pain do not do justice to the extent of suffering and reduced quality of life experienced by patients. It is not the economic impact, but rather the tremendous human suffering resulting from chronic pain that warrants pain relief being regarded as a universal human right[27]. Pain affects everyone to varying degrees. For some it may be the briefest of acute sensations, but for others it becomes a permanent feature of their lives and its effects on well-being can be wide reaching, leading to depression, sleep disturbance and fatigue, decrements in physical and cognitive functioning, and changes in the mood, personality, and social relationships of the sufferer[28].

In the UK, based on a prevalence of chronic pain of 10%[29], it has been estimated that there are 2,150 million chronic pain days per year, while if the World Health Organization prevalence estimate of 22% - in primary care patients, where the prevalence is likely to be higher - was used[30], there would be 2,400 million in Canada, 4,700 million in France, 6,600 million in Germany and 21,500 million in USA. In addition to the impact these 'pain days' have on individuals' quality of life, other family members are also adversely affected as adjustments have to be made to adapt to the chronic pain problem[31-33].

Chronic pain and musculoskeletal disorders are associated with some of the poorest quality-of-life indices[34-35]. In a study of over 600 patients attending a chronic pain clinic in Sydney, Australia, there were greatly reduced SF-36 domain scores between clinic patients and Australian norm values[36]. Relatively low SF-12 scores were also demonstrated in a European study on chronic musculoskeletal pain, which also highlighted that up to 57% of respondents were in constant pain and between 15% and 22% were in daily pain[37]. In the PROCESS trial[38] the mean baseline EQ-5D of the patients was 0.15, which is considerably less than the baseline EQ-5D score of patients hospitalised after ischemic stroke, which has been reported to be 0.31 on the EQ-5D scale[39].

Thus although the wider costs of chronic pain - in terms of suffering and impact on quality of life - are impossible to quantify with any degree of precision, it is clear that they come at a high price in terms of an individual's physical, psychological, and social well-being.

**Conclusion**

The opening words in this review were provided by McQuay. It is also worth leaving the final words to him. "*Chronic disease comes low on the political priority list, and chronic pain just gets forgotten. The burden for the sufferers, their families, and society is substantial and merits better treatment. The mark of a gracious society is how it treats those with least voice. That chronic pain puts people at the bottom of the pile is precisely why we should be agitating on their behalf for a fairer share of the medical resource cake*[1]".

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